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FULL CONTENTS

[Claim(s)]

[Claim 1] (A) The thermoplastics constituent which blends (B) polypropylene terephthalate 0.1 - the 100 weight sections to the thermoplastics 100 weight section.

[Claim 2] The thermoplastics constituent according to claim 1 whose thermoplastics is thermoplastic polyester other than polypropylene terephthalate.

[Claim 3] The thermoplastics constituent according to claim 2 whose thermoplastic polyester is polyethylene terephthalate and/or polybutylene terephthalate.

[Claim 4] The thermoplastics constituent according to claim 1 which are one sort or two sorts or more of mixture with which thermoplastics is chosen from the group which consists of polyamide resin, polyphenylene sulfide resin, polyoxymethylene resin, polystyrene resin, and polystyrene system resin.

[Claim 5] The thermoplastics constituent according to claim 4 whose polystyrene system resin is styrene / acrylonitrile copolymer, or acrylonitrile / butadiene / styrene copolymer.

[Claim 6] Claim 1 -5 with which glass transition temperature blends an elastomer of 20 degrees C or less further to the thermoplastics 100 weight section - a thermoplastics constituent given in either.

[Claim 7] The thermoplastics constituent according to claim 6 whose elastomer of 20 degrees C or less glass transition temperature is an olefin system elastomer.

[Claim 8] The thermoplastics constituent according to claim 6 or 7 whose mean particle diameter of this dispersed phase the dispersed phase which consists of an elastomer with a glass transition temperature of 20 degrees C or less exists in a thermoplastics matrix phase, and is 20 microns or less.

[Claim 9] Claim 1 -5 which make it come further to the thermoplastics 100 weight section to contain the epoxy compound 0.01 - 30 weight sections - either - the thermoplastics constituent of a description.

[Claim 10] Claim 1 -9 which blend a filler 5 - the 140 weight sections further to the thermoplastics 100 weight section - a thermoplastics constituent given in either.

[Claim 11] The thermoplastics constituent according to claim 10 whose filler is a glass fiber.

[Claim 12] Claim 1 -11 -- the connector obtained by injection molding the thermoplastics constituent of a description to either.

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention is excellent in mechanical physical properties, thermal resistance, and a moldability, is especially excellent in an impact property and hydrolysis-proof nature, and relates to a resin composition object suitable as a charge of connector lumber especially.

[0002]

[Description of the Prior Art] Since it excels in an impact property, thermal resistance, chemical resistance, weatherability, and an electrical property, polyethylene terephthalate, polybutylene terephthalate or nylon 6, and the thermoplastics represented by Nylon 66 are used as connector area articles, such as an automobile, electrical and electric equipment, and electronic parts.

[0003] The mold-goods ingredient which can be equal to the activity under a severe condition conventionally has been required in recent years with progress of the miniaturization and high integration in the microelectronics field.

[0004] However, when the long duration pan of these thermoplastics was carried out under an elevated temperature and highly humid, crystallization, heat deterioration, or hydrolysis advanced gradually, toughness fell, and it had the fault that mold goods broke easily. For this reason, the actual condition is that the activity is restricted in the application for which the endurance under an elevated temperature and highly humid is needed.

[0005] How to blend with polyester resin the aromatic polycarbonate shown in JP,S60-231757,A etc., and a glycidyl group content copolymer as a means to solve such a trouble, The method of blending the vinyl system polymer and glycidyl group content vinyl system copolymer which are shown in JP,S57-100154,A etc. is indicated. Moreover, the method of blending denaturation polyolefine is indicated by JP,S61-283653,A.

[0006]

[Problem(s) to be Solved by the Invention] However, the method indicated by JP,S60-231757,A and JP,S57-100154,A was not enough as the improvement effectiveness of impact strength and hydrolysis-proof nature. Moreover, by the method currently indicated by JP,S61-283653,A, although surely shock resistance was improved to some extent, it had the trouble that initial stiffness was low.

[0007]

[Means for Solving the Problem] [this invention persons] by blending polypropylene terephthalate with thermoplastics as a result of inquiring wholeheartedly that the above-

mentioned technical problem should be solved Even if it neglected the connector obtained [excelling in thermal resistance, shock resistance, and hydrolysis-proof nature, and] by fabricating a header and the resin composition object which blends polypropylene terephthalate further under an elevated temperature and highly humid, it reached [that destruction of mold goods does not take place easily, and] header this invention.

[0008] Namely, this invention receives the (1) (A) thermoplastics 100 weight section. (B) The thermoplastics constituent which blends polypropylene terephthalate 0.1 - the 100 weight sections, (2) The above-mentioned thermoplastics constituent whose thermoplastics is thermoplastic polyester other than polypropylene terephthalate, (3) The above-mentioned thermoplastics constituent whose thermoplastic polyester is polyethylene terephthalate and/or polybutylene terephthalate, Thermoplastics (4) Polyamide resin, polyphenylene sulfide resin, The above-mentioned thermoplastics constituent which are one sort or two sorts or more of mixture chosen from the group which consists of polyoxymethylene resin, polystyrene resin, and polystyrene system resin, (5) As opposed to the above-mentioned thermoplastics constituent and the (6) thermoplastics 100 weight section whose polystyrene system resin is styrene / acrylonitrile copolymer, or acrylonitrile / butadiene / styrene copolymer In the above-mentioned thermoplastics constituent whose elastomer of 20 degrees C or less is the above-mentioned thermoplastics constituent with which glass transition temperature blends an elastomer of 20 degrees C or less further and whose (7) glass transition temperature is olefin system elastomers, and (8) thermoplastics matrix phase The dispersed phase which consists of an elastomer with a glass transition temperature of 20 degrees C or less exists. The above-mentioned thermoplastics constituent whose mean particle diameter of this dispersed phase is 20 microns or less, (9) The above-mentioned thermoplastics constituent which makes it come further to the thermoplastics 100 weight section to contain the epoxy compound 0.01 - 30 weight sections, (10) It is the connector obtained by injection molding the above-mentioned thermoplastics constituent which blends a filler 5 - the 140 weight sections further, the above-mentioned thermoplastics constituent whose (11) fillers are glass fibers, and the (12) above-mentioned thermoplastics constituent to the thermoplastics 100 weight section.

[0009]

[Embodiment of the Invention] The resin composition object of this invention is explained concretely below.

[0010] The thermoplastics (A) of this invention is the synthetic resin which shows a fluidity when it heats, and can carry out a fabricating operation using this. As this example, for example Polyester resin other than polypropylene terephthalate, Liquid crystal polyester resin, polycarbonate resin, polyamide resin, polyphenylene oxide resin, Polyphenylene sulfide resin, polyoxymethylene resin, phenoxy resin, Polyolefine system resin, such as polypropylene resin and polyethylene, ethylene / propylene resin, Ethylene / 1-butene resin, ethylene / propylene / nonconjugated diene resin, Ethylene / ethyl-acrylate resin, ethylene / glycidyl methacrylate resin body, Ethylene / vinyl acetate / glycidyl methacrylate resin,

ethylene / vinyl acetate / glycidyl methacrylate resin, Ethylene / propylene g-maleic-anhydride resin, polystyrene resin, Polystyrene system resin, such as styrene/acrylonitrile copolymer, and acrylonitrile / butadiene / styrene copolymer (ABS plastics), Although elastomers, such as a polyester polyether elastomer and a polyester polyester elastomer, or two or more sorts of mixture of these thermoplastics are mentioned, polyester resin other than polypropylene terephthalate, polyamide resin, polycarbonate resin, Phenoxy resin, polyphenylene sulfide resin, phenol resin, Polyoxymethylene resin, polystyrene resin, styrene/acrylonitrile copolymer, [one sort or two sorts or more of mixture chosen from polystyrene system resin, such as acrylonitrile / butadiene / styrene copolymer (ABS plastics),] desirable still more preferably Polyester resin other than polypropylene terephthalate, polyamide resin, Polyphenylene sulfide resin, polyoxymethylene resin, polystyrene resin, It is one sort or two sorts or more of mixture chosen from polystyrene system resin, such as styrene/acrylonitrile copolymer, and acrylonitrile / butadiene / styrene copolymer (ABS plastics), and especially good **** are polyester resin other than polypropylene terephthalate.

[0011] As polyester resin among the above-mentioned thermoplastics (A) It is polyester resin other than polypropylene terephthalate, and dicarboxylic acid, the polycondensation object of a glycol, the ring-opening-polymerization object of annular lactone, the polycondensation object of hydroxycarboxylic acid and a dibasic acid, the polycondensation object of a glycol, etc. are mentioned substantially. Specifically Polyethylene terephthalate resin, polybutylene terephthalate resin, The others which are polyethylenenaphthalate resin, polybutylene naphthalate resin, polycyclohexane-dimethylene-terephthalate resin and polyethylene 1, 2-bis(phenoxy) ethane 4, 4'-dicarboxy rate resin, etc., The others which are polyethylene 1, 2-bis(phenoxy) ethane 4, 4'-dicarboxy rate resin, etc., Polyethylene isophthalate / terephthalate resin, polybutylene terephthalate / isophthalate resin, Copolymers and mixture, such as polybutylene terephthalate / decane dicarboxy rate resin, and polycyclohexane dimethylene terephthalate/isophthalate resin, can be mentioned. As suitable polyester resin especially for this invention, they are polyethylene terephthalate resin and polybutylene terephthalate resin.

[0012] There is no limit in particular in the molecular weight of such polyester resin. usually – although the intrinsic viscosity measured at 25 degrees C using the mixed solvent of a phenol / tetrachloroethane 1:1 can use the thing of 0.10-3.00 – desirable – 0.25-2.50 – it is 0.40-2.25 especially preferably.

[0013] As polyamide resin among the above-mentioned thermoplastics (A) For example, the ring-opening-polymerization object of an annular lactam, the polycondensation object of an amino carboxylic acid, The polycondensation object of a dibasic acid and diamine etc. is mentioned and specifically Aliphatic series polyamides, such as nylon 6, Nylon 66, Nylon 46, Nylon 610, Nylon 612, Nylon 11, and Nylon 12, Pori (meta-xylylene adipamide) (it abbreviates to MXD and 6 below), Pori (hexamethylphthalamide) (it omits Following 6T), Pori (hexamethylene isophthalamide) (it omits Following 6I), Pori

(tetramethyleneisophthalamide) (it omits Following 4I), Aliphatic series-aromatic polyamide, and such copolymers and mixture, such as poly(nonamethyleneterephthalamido) (it omits Following 9T), can be mentioned. As a suitable polyamide especially for this invention, nylon 6 T/Nylon 66 /nylon 6, Nylon 66, nylon 6/66, and 6T, nylon 6 T/12, and 6I, nylon 6 T/6I/12, nylon 6 T/6I0, and nylon 6 T / 6I/6 can be mentioned.

[0014] There is no limit in particular in the molecular weight of such polyamide resin, although 1% of concentration and the relative viscosity measured at 25 degrees C can use the thing of 1.70-4.50 among a 98% sulfuric acid -- desirable -- 2.00-4.00 -- it is 2.00-3.50 especially preferably.

[0015] As polystyrene system resin, the polymer blend object of polystyrene, styrene / acrylonitrile copolymer, rubber denaturation styrene resin, rubber denaturation styrene resin, and polyphenylene ether etc. is mentioned among the above-mentioned thermoplastics (A).

[0016] Rubber denaturation styrene resin means the graft polymer which a rubber-like polymer distributes in the shape of a particle in the matrix which consists of a vinyl aromatic series system polymer here. This and a copolymerizable vinyl monomer are added an aromatic vinyl monomer and if needed under existence of a rubber-like polymer, and monomer mixture is obtained a well-known bulk polymerization, a massive suspension polymerization, solution polymerization, or by carrying out an emulsion polymerization.

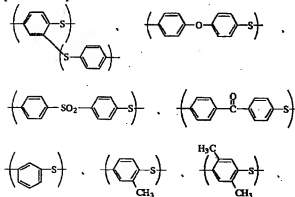
[0017] As polyphenylene sulfide resin, the repeat unit substantially expressed with the following structure expression among thermoplastics (A) Moreover, [Formula 1]



The resin which consists of more than 70 mol % and a polymer which contains more than 90 mol % more preferably is expressed. Moreover, polyphenylene sulfide resin can constitute less than [of the repeat unit / 30 mol %] from a repeat unit which has the following structure expression.

[0018]

[Formula 2]



If fusion kneading is possible for the melt viscosity of such polyphenylene sulfide resin, there will be no limit in particular, but a 50-20000P (320-degree and 10sec of shear rate-1) thing is usually used.

[0019] Polyoxymethylene resin means an oxy-methylene homopolymer and the oxymethylene copolymer which mainly consists of an oxy-methylene unit and contains the oxyalkylene unit of at least one sort of carbon numbers 2-8 in a polymer molecule among the above-mentioned thermoplastics (A).

[0020] Although there is no limit in particular in the molecular weight of such polyoxymethylene resin, it measures by GPC (gel permeation chromatography), the number average molecular weight converted by the standard polymethyl methacrylate -- 10,000-500,000 -- desirable -- 15,000-100,000 -- the thing of 20,000-50,000 is used especially preferably.

[0021] [terephthalate] although polypropylene terephthalate (B) of this invention points out the thermoplastic polyester resin with which the terephthalic acid was used for the acid component and it used 1 and 3-propylene glycol for the glycol component In addition, isophthalic acid, alt.phthalic-acid, naphthalene-dicarboxylic-acid, oxalic acid, adipic-acid, 1, and 4-cyclohexane dicarboxylic acid etc. as an acid component in the range which does not spoil the object of this invention as a glycol component Some ethylene oxide addition products of ethylene glycol, 1,4-butanediol, 1,6-hexanediol, 1, 4-cyclohexane dimethanol, and bisphenol A etc. can be used.

[0022] If the amount of copolymerization in the case of copolymerizing is range which does not spoil the object of this invention, there will be no limit in particular, but it is desirable that they are usually less than 30 mol % of an acid component or less than 30 mol % of a glycol component.

[0023] There is no limit in particular in the molecular weight of such polyester resin. usually -- although the intrinsic viscosity (dl/g) measured at 25 degrees C using the mixed solvent of a phenol / tetrachloroethane 1:1 can use the thing of 0.10-3.00 -- desirable -- 0.25-2.50 -- it is 0.40-2.25 especially preferably.

[0024] Moreover, the thermoplastics constituent of this invention can raise reinforcement, rigidity, thermal resistance, etc. substantially by adding a filler further. Since an adhesive property with a filler improved substantially by using together polypropylene terephthalate and the filler of this invention especially, compared with the resin composition object which blended the filler with thermoplastics, it turned out that reinforcement and a rigid and heat-resistant improved effect are very large.

[0025] As an example of such a filler, a glass fiber, a carbon fiber, a metal fiber, An aramid fiber, asbestos, a potassium titanate whisker, a boric-acid aluminum whisker, Huaras Tena lto, a glass flake, a glass bead, titanium oxide, an aluminum oxide, etc. are mentioned, and a chopped strand type glass fiber is used preferably especially.

[0026] The 5 - 140 weight section is desirable especially desirable to the (thermoplastics A)

[0027] Moreover, the thermoplastics constituent of this invention can improve an impact property further, if glass transition temperature adds an elastomer of 20 degrees C or less further.

[0029] moreover, such an olefin system elastomer] It aims at raising compatibility with polypropylene terephthalate resin. The denaturation polyolefin elastomer which a kind of functional group combined with the inside of a polymer molecule or a polymer end chemically at least among a hydroxyl group, a carboxylic acid group, the carboxylate radical, the carboxylic-acid metal base, the carvone acid anhydride group, the imide radical, etc. can also be used.

[0031] When using an elastomer in small quantities comparatively especially, below in 30 weight sections, in below 20 weight sections, the elastomer in a resin composition object exists [below 50 weight sections] as a dispersed phase in polypropylene terephthalate

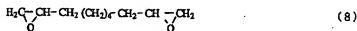
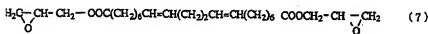
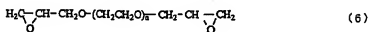
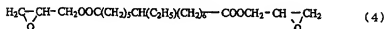
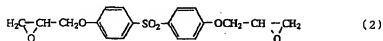
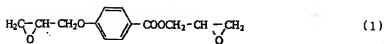
resin as a matrix preferably especially. In order for the mold goods obtained with the constituent of this invention to hold the more excellent impact strength, it is desirable to carry out micro-disperse. Although there is the method of making particle size of a dispersed phase a rate scale as one of the methods which evaluates the mixed state in a resin composition object, when blending an elastomer with the resin composition object of this invention, 15 microns or less are desirable still more desirable, and the distributed average of an elastomer part is 10 microns or less.

[0032] Moreover, the thermoplastics constituent of this invention can blend an epoxy compound further for the purpose of improvement in the impact property of a thermoplastics constituent, and hydrolysis-proof nature.

[0033] If it is the epoxy compound which contains an epoxy group among a molecule as such an epoxy compound, there will be no limit in particular, but a mono-epoxy compound, a diepoxy compound, and a triepoxy compound are desirable, and can use especially a diepoxy compound preferably. As such a diepoxy compound, the diepoxy compound concretely expressed with a following general formula (1), (2), (3), (4), (5), (6), (7), and (8) can be used.

[0034]

[Formula 3]



(n expresses one or more integers.)

[0035] the addition of such an epoxy compound receives the thermoplastics 100 weight section – usually – 0.01 - 30 weight section – desirable – 0.02 - 25 weight section – it is 0.03 - 20 weight section still more preferably.

[0036] Moreover, when the thermoplastics constituent of this invention added the crystalline-nucleus agent further, it was found out that thermal resistance and hydrolysis-proof nature improve further. [if it is the compound which promotes crystallization of a thermoplastics constituent as a crystalline-nucleus agent, there will be no limit in particular,

but) Talc, a mica, a kaolin, a silica, clay, a metallic oxide, a carbonate, a sulfate, an organic-carboxylic-acid salt, an organic-sulfonic-acid salt, etc. are used preferably, and talc, a mica, and a kaolin can use it preferably especially in these. the addition of a crystalline-nucleus agent usually receives the thermoplastics 100 weight section -- usually -- 0.01 - 20 weight section -- desirable -- 0.02 - 15 weight section -- it is 0.03 - 10 weight section still more preferably.

[0037] In the range which does not spoil the object of this invention to the thermoplastics resin composition object of this invention, moreover, a hindered phenol system, antioxidants, such as a phosphorus system and a sulfur system antioxidant, and a thermostabilizer and an ultraviolet ray absorbent (for example, resorcinol --) lubricant, such as salicylate, benzotriazol, and a benzophenone, and a release agent (a montanoic acid and its salt --) The ester, its half ester, stearyl alcohol, Stera AMAIDO, an ethylene wax, etc., One or more sorts of usual additives, such as a color protection agent, plasticizers (phosphite, hypophosphite, etc.), a halogen series flame retardant, a phosphorus series flame retardant, an antistatic agent, and coloring agents (a cadmium sulfide, a phthalocyanine, etc.) containing a color and a pigment, can be added.

[0038] The thermoplastics constituent of this invention is usually manufactured by a well-known method. For example, an extruder etc. is supplied without carrying out preliminary mixing and driving (A) thermoplastics, (B) polypropylene terephthalate, and other required additives again, and it is prepared by carrying out fusion kneading enough in a temperature requirement (150 degrees C - 350 degrees C). Since the single screw extruder equipped with the "uni-melt" type screw in this case, two shafts, a triaxial extruder, a kneader type kneading machine, etc. can be used and especially an aspect ratio is controlled, you may insert some kneading elements in a screw. Since melt molding is possible for the thermoplastics constituent of this invention, extrusion molding, injection molding, press forming, etc. are possible for it, and it can be fabricated and used for mold goods with a film, tubing, a rod, the configuration of arbitration for which it wishes, and magnitude. Especially, it is suitable for especially an injection-molded product application, and For example, various gear, various cases, A sensor, a LED lamp, a connector, a socket, a resistor, a relay case, A switch, a coil bobbin, a capacitor, a variable condenser case, an optical pickup, A radiator, various terminal assemblies, a transformer, a plug, a printed wired board, a tuner, A loudspeaker, a microphone, headphone, a size motor, a magnetic head base, A power module, housing, a semi-conductor, liquid crystal display components, FDD carriage, A FDD chassis, HDD components, a motor brush electrode holder, a parabolic antenna, The electrical and electric equipment and electronic-parts;VTR components represented by the computer associated part etc., Television components, an iron, a hair drier, rice cooker components, microwave oven components, Voice device components, such as sound components and an audio laser disc compact disk, The home represented by Lighting Sub-Division components, refrigerator components, air-conditioner components, typewriter components, word processor components, etc., Various bearing,

such as clerical work electric product components, office computer associated part, telephone associated part, facsimile associated part, copying machine associated part, fixture for washing, oilless bearing, and stem bearing, and submerged bearing, motor components, The machine associated part, microscope which are represented by a writer, the typewriter, etc., The optical instrument, precision instrument associated part which are represented by a binocular, a camera, the clock, etc., An AC-dynamo terminal, an AC-dynamo connector, an I.C. regulator, Various bulbs, such as the potentiometer base for light DIYA, and an exhaust air gas valve, Fuel relation / exhaust air system and suction system various pipes, an air intake nozzle snorkel, An intake manifold, a fuel pump, an engine-cooling-water fastener, A carburetor main body, a carburetor spacer, an exhaust gas sensor, A cooling water sensor, an oil temperature sensor, a brake putt weir sensor, A throttle position sensor, a crankshaft position sensor, An air flow meter, a brake vat wear sensor, the thermostat base for air-conditioners, A heating warm air flow control valve, the brush electrode holder for radiator motors, A water pump impeller, turbine ** Inn, windshield-wiper-motor relation components, DEYUSUTORIBYUTA, starter SUITCHI, a starter relay, the wire harness for transmission, a window OSSHA nozzle, an air-conditioner panel SUITCHI substrate, The coil for fuel relation electromagnetism valves, the connector for fuses, a horn terminal, An electric equipment article electric insulating plate, a step motor rotor, a lamp socket, a lamp reflector, It is useful to the various application of a lamp housing, a brake piston, a solenoid bobbin, an engine oil filter, an ignition case, a play apparatus implement, a toiletries supply, an amusement supply, a toy supply, a chemical processing plant, aeronautical-navigation components, etc. Although it can use useful especially taking advantage of the description of this invention as housing and those components, such as a machine mechanism element, the electrical and electric equipment and electronic parts, autparts, OA equipment, and electrical household appliances and electrical equipment, in the above, it can be especially used preferably as a charge of connector lumber which can demonstrate the effectiveness of this invention.

[0039]

[Example] A work example explains the effectiveness of this invention to a detail further below. However, this invention is not limited to these examples at all.

[0040] In addition, the used thermoplastics and its compounding agent are as follows.

[0041] - PBT (polybutylene terephthalate) : Toray Industries PBT1100s (made by Toray Industries, Inc.)

- PET (polyethylene terephthalate) : diamond alloy TW90E (made by Mitsubishi Rayon Co., Ltd.)

- N6 (polyamide 6) : Amilan CM1010 (made by Toray Industries, Inc.)

- ABS (ABS plastics) : TOYORAKKU (Type 100) (made by Toray Industries, Inc.)

- PPS (polyphenylene sulfide resin) : TORERINA L2120 (made by the Toray Industries PPS company)

- POM (polyoxymethylene resin) : Duracon M90-44 (product made from Polyp Lastic)

Moreover, many properties were measured by the following methods.

[0042] - Tensile strength : ASTM D-638 was followed.

[0043] - Bending elastic modulus : ASTM It applied to D790 correspondingly.

[0044] - Eye ZODDO impact test : ASTM It applied to D256 correspondingly.

[0045] - Load deflection temperature : ASTM According to D648, the load deflection temperature in load 1.82MPa was measured.

[0046] - Hydrolysis-proof nature : the tensile strength of the sample which neglected the test piece for tensile test under 121 degrees C and 100RH% for 30 hours was measured, and tensile strength retention was computed after strength retention = processing / from x100 before processing (%).

[0047] Into the example of reference 1 <manufacture of polypropylene terephthalate> 5l. autoclave, 2.0kg of terephthalic-acids, 1, and 3-propylene glycol 1.3kg was measured, and it was set as the autoclave internal temperature of 180 degrees C. When it became the internal temperature of 120 degrees C, after adding titanium tetra-butoxide 2.0g and mono-hydroxy tin oxide 2.0g, it agitated with the internal temperature of 180 degrees C for 1 hour. Then, while carrying out temperature up to 250 degrees C over 2 hours, it was made reduced pressure to 0.5mmHg whenever [reduced pressure].

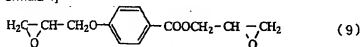
[0048] Then, the polymer was breathed out, when it was made to react for about 1 hour and torque became fixed. The intrinsic viscosity measured at 25 degrees C using the mixed solvent of a phenol / tetrachloroethane 1:1 was 1.3.

[0049] The polypropylene terephthalate (B) manufactured in work examples 1-5, a comparative example 1, 2 thermoplastics (A), and the example of reference was mixed with the compounding ratio shown in a table 1, and fusion kneading was carried out with the melting point of +30 degrees C of thermoplastics using the 30mmphi biaxial extruder with a vent. The Sumitomo NESUTARU injection molding machine and the pro mats 40/25 (made by Sumitomo Heavy Industries, Ltd.) were supplied after drying the obtained pellet, and the cylinder temperature was fabricated on conditions with a polymer melting point of +30 degrees C, and a die temperature of 80 degrees C.

[0050] Moreover, as shown in a table 2, glass transition temperature in the work example 5 as an elastomer of 20 degrees C or less Glycidyl methacrylate denaturation polyethylene copolymer (the diepoxy compound expressed with a following general formula (9) as the GMA denaturation polyethylene copolymer by the Nippon Oil chemistry company (RA3050) and an epoxy compound was blended.)

[0051]

[Formula 4]



In addition, in order to measure the distributed particle size of the obtained elastomer in a resin composition object, The flake was cut down for the test piece for assessment using

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表 1

	(A)熱可塑性樹脂 100重量部	(B)芳香族ポリカーボネート 添加量(重量部)	(C)ガラス繊維 添加量(重量部)	機械特性 引張強度 (MPa)	耐熱性 荷重 たわみ 温度(℃)	耐衝撃性 アーク 衝撃値 (J/m)	耐加水分解性 121℃(100%RH) 30日強度保持率
実施例1	PET	10	30	118	230	120	40%
実施例2	PET	20	30	118	230	130	50%
比較例1	PET	—	30	118	230	98	30%
実施例3	PBT	10	30	147	212	102	60%
実施例4	PBT	20	30	147	212	128	70%
比較例2	PBT	—	30	147	212	88	50%

[0054]

[Table 2]

表 2

	(A)熱可塑性樹脂 100重量部	(B)ポリプロピレン 添加量 (重量部)	その他の添加剤 添加量 (重量部)	機械特性 引張強度 (MPa)	耐熱性 荷重 たわみ 温度(℃)	耐衝撃性 Izod 衝撃値 (J/m)	耐加水分解性 121℃(100%RH) 20%強度保持率
実施例 5	PBT	20	ガラス繊維 30 エラストマー 20 エポキシ 20	147	212	150	80

[0055] It is clear to excel also in an impact property and hydrolysis-proof nature, PET which blended polypropylene terephthalate from the above result, or PBT holding tensile strength and thermal resistance.

[0056] Moreover, it turns out that impact strength and hydrolysis-proof nature can be raised further, without reducing tensile strength and load deflection temperature, when glass transition temperature adds an elastomer and an epoxy compound of 20 degrees C or less.

[0057] The resin composition object of work examples 6 and 7, comparative example 3 work examples 3 and 5, and a comparative example 2 is used. The connector shown in drawing 1 with the maximum of 55mm, 13mm in height, a depth of 37mm, and a thickness of 1mm is fabricated by injection molding. The place which compared the time amount which 110 degrees C and 95%RH carried out bottom predetermined time neglect of a condition of this, and the crack generated, At the connector (work examples 6 and 7) using work examples 3 and 5, crack initiation was accepted by the connector (comparative example 3) using a comparative example 2 to not generating a crack for at least 300 hours in 100 hours.

[0058] It carried out like the work example 1 except having used N6, PPS, POM, and ABS as four to work-examples 8-11 and comparative example 7 thermoplastics. A series of combination formulas and a measurement result are shown in a table 3.

[0059] In addition, since each of these resin was resin which is intrinsically excellent in hydrolysis-proof nature, even if it blended polypropylene terephthalate of this invention, change was not accepted in hydrolysis-proof nature. However, excelling in an impact property is clear, holding tensile strength and thermal resistance by blending polypropylene terephthalate.

[0060]

[Table 3]

表 3

	(A) 熱可塑性樹脂 100重量部	(B) スリッパ・ビニル・フタルート 添加量(重量部)	(C) ガラス繊維 添加量(重量部)	機械特性		耐熱性 荷重 たわみ 温度(°C)	耐衝撃性 フット 衝撃値 (J/m)
				引張強度 (MPa)	伸び(%)		
実施例8	N6	20	30	167	—	215	130
比較例4	N6	—	30	167	—	215	108
実施例9	PPS	20	40	157	—	>260	128
比較例5	PPS	—	40	157	—	>260	98
実施例10	POM	20	—	61	—	110	90
比較例6	POM	—	—	61	—	110	63
実施例11	ABS	20	—	70	—	80	200
比較例7	ABS	—	—	70	—	80	150

[0061]

[Effect of the Invention] The thermoplastics constituent of this invention is excellent in thermal resistance, shock resistance, and hydrolysis-proof nature.

[Brief Description of the Drawings]

[Drawing 1] It is the schematic diagram of connector mold goods, and (A) is a top view and (B) is a front view.

[Drawing 1]

[0011]

(A)



(B)



[Translation done.]